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Integrative Insights into ODD: Neurocognitive and Social Mechanisms

Wiktoria Maria Wójcik
The Maria Grzegorzewska University, Warsaw, Poland
ww70865@aps.edu.pl

BACKGROUND

- Oppositional Defiant Disorder (ODD) is a childhood condition characterized by persistent irritability, defiance, and vindictive behavior, which negatively impact daily functioning (American Psychiatric Association, 2013)
- According to coercion theory, maladaptive parent–child interactions play a key role, with reciprocal patterns between children's oppositional behaviors and parental responses reinforcing and maintaining symptoms (Zhang et al., 2024)
- Deficits in social cognition, particularly theory of mind, may further contribute to ODD, as difficulties in understanding others' emotions, intentions, and beliefs can impair social functioning (Mohammadi et al., 2024)

METHODS

- **Literature Search:** Peer-reviewed studies and clinical guidelines published between 2014 and 2025 were identified through structured searches in major databases (EBSCO, ScienceDirect, PubMed, National Library of Medicine), as well as professional organizational websites.
- **Analysis:** The literature primarily comprised cross-sectional, longitudinal, neuroimaging, and intervention studies focusing on emotional-processing interventions, Theory of Mind (ToM), executive functions, neurodevelopmental risk factors, and parent–child interpersonal neural synchrony (INS)

LITERATURE RESULTS

- **Mohammadi et al., 2024**

  The findings indicate that facial emotion-based cognitive rehabilitation improves theory of mind in children with oppositional defiant disorder. This improvement likely results from enhanced emotion recognition and simulation processes. Additionally, gains in social cognition support better understanding of others and more appropriate social behavior.

- **Ahmadi et al., 2023**

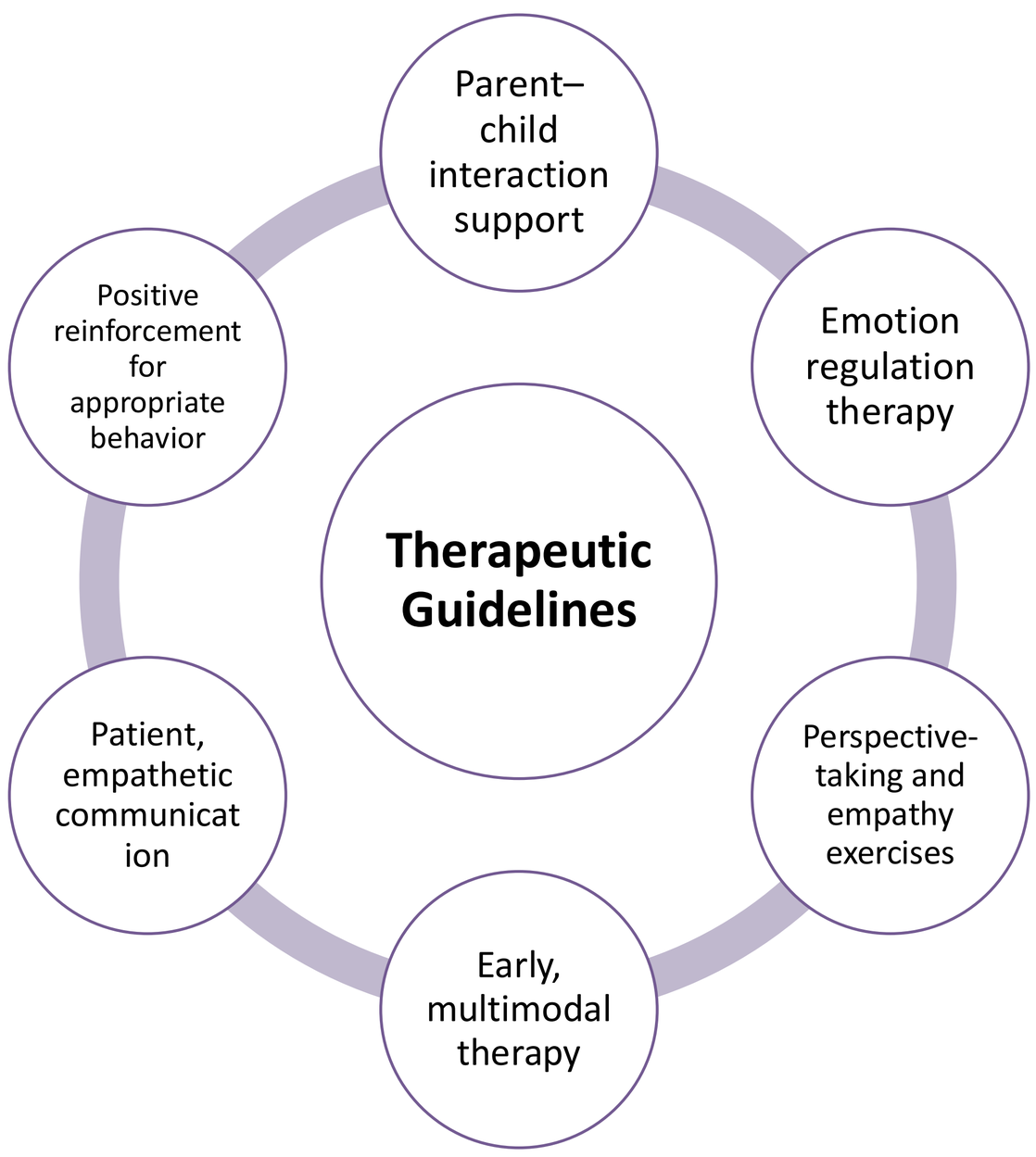
  Emotion-oriented therapy significantly reduces symptoms of oppositional defiant disorder and anxiety in adolescents, with effects maintained at follow-up. These outcomes may be explained by the therapy's focus on identifying, expressing, and transforming maladaptive emotions. Additionally, improving emotional awareness and regulation helps adolescents better manage negative emotional states.

- **Zhang et al., 2024**

  The findings show that mother–child pairs display distinct neural synchrony patterns across neutral, positive, and negative interactions. Additionally, lower neural synchrony is associated with higher levels of ODD symptoms in children. These results suggest that neural synchrony during interpersonal interactions may play an important role in the underlying mechanisms of ODD.

- **Kerekes et al., 2014**

  The results highlight the importance of considering gender differences and social context in the assessment and treatment of disruptive behaviors, as patterns vary between boys and girls. They also emphasize the need for comprehensive clinical evaluation of children with ODD and/or CD, including the identification of co-occurring neurodevelopmental difficulties, particularly in social interaction. Early, multimodal, and tailored interventions are therefore essential to effectively address these complex needs.



CONCLUSION

ODD is best conceptualized as a disorder of disrupted emotional–social integration rather than isolated behavioral dysregulation. Evidence converges on emotional processing, theory of mind, executive functioning, and parent–child interaction as core, interacting mechanisms.

These domains form a dynamic system in which deficits mutually reinforce each other across cognitive, emotional, and interpersonal levels. Consequently, effective intervention should move beyond symptom reduction and target these mechanisms in an integrated and developmentally informed manner.

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